VOLUMETRIC ULTRASOUND IMAGING SYSTEM USING TWO-DIMENSIONAL ARRAY TRANSDUCER

ABSTRACT OF THE DISCLOSURE

Volumetric ultrasound images are obtained using a two-dimensional array transducer to create multiple beams that diverge in a viewing direction to achieve high display resolution real-time volumetric imaging. In one embodiment, ultrasound echoes in a plurality of beams positioned adjacent each other in the elevational direction are projected onto respective planes. The volumetric image is created by combining the planes of projection for all of the beams. As a result, an image having a high resolution can be created in real-time. The area scanned by the transducer is divided into symmetrically arrayed beams so that echoes located at the same distance from the transducer are at substantially the same depth beneath the transducer. In another embodiment, multiple beams scan in respective ranges of scanning depths, and the elevational divergence angle is reduced for deeper ranges of scanning depths. In another embodiment, multiple intersecting or parallel beams are used to create volumetric images.